Ref: NCC/PD/2020-21/KL-CD1

Date: 28-06-2021

LAST REPORT ON COARSE AGGREGATE:

Ref: Testing of Coarse Aggregate used in Dense Graded Bituminous Macadam.
Project: Improvements to Roads and Drains at Dwarakanagara Surrounding area in Ward No: 05 (Jakkur) Byatarayanapura Sub-Division.)
Ref: Material testing/PMC/20-21,
Report Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: K.R Santosh Kumar, Bangalore.

TABLE 1.1:

Test conducted	Test Results	Tests Conforms to IS 2386(Part I to IV)– 1963 (Reaffirmed on 2002) & Requirements as per IS:383-1970 & M.o.R.T.H Specification, V Revision -2013.
Aggregate Impact Value	23.06%	Not more than 27.00 % for DBM
Combined Flakiness and Elongation index, %	26.78%	Not more than 35.0 %
Water absorption, %	0.42%	Not more than 2.0 %
Specific gravity	2.62	------
Soundness	6.86 %	Max. 12 % in Sodium Sulphate

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Dwarakanagara, 2nd Main Road

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Page No. 1/1,

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BBMP, Bangalore - 92

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NCON/PD/2020-21/KL-DBM1

Date: 01-07-2021

LAB TEST REPORT ON BITUMINOUS MIXES :
(BITUMEN EXTRACTION TEST & GRADATION TEST)

Sub: To determine the percentage of bitumen and gradation for DBM mix sample.
Proj*: Improvements to Roads and Drains at Dwarakanagara Surrounding area in Ward No: 05 (Jakkur) Byatarayanapura Sub-Division.}
Ref. Material testing/PMC/20-21,
Work Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: K.R Santosh Kumar, Bangalore.

TEST RESULTS

A. Type of Construction : **Dense Graded Bituminous Macadam.**

1. The bitumen content obtained after subjecting the sample for Bitumen Extraction test = **4.54 %**

2. Gradation Test

TABLE 1.1

Sieve Size, mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Gradation requirement as per Table 500-10 of MORTH Specfications-2013 DBM (Grading - 2)
37.5	100	100
26.5	95.45	90-100
19.0	82.55	71-95
13.20	74.60	56-80
4.75	48.10	38-54
2.36	34.80	28-42
0.300	17.25	7-21
0.075	6.15	2-8

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Dwarakanagara, 2nd Main Road.

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NCP/PD/2020-21/KL-DS1

Date: 01-07-2021

SUBJECT: REPORT ON BITUMINOUS MIXES :
(STABILITY OF BITUMINOUS MIX)

To determine the stability of bituminous mix for DBM mix sample.
Improvements to Roads and Drains at Dwarakanagara Surrounding area in Ward No: 05
(Jakkur) Byatarayanapura Sub-Division.}
Material testing/PMC/20-21,
Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.
*Name of the Agency/Contractor**: K.R Santosh Kumar, Bangalore.

TEST RESULTS

1. Properties of DBM (Gr-2) Mix

Sl. No.	Test Property	*Test results obtained by Marshall method	Requirements of Dense Bituminous Macadam, Grade-2 as per M.o.R.T&H (IV Revision)-2001 Specifications
1	Marshall Stability (75 blows) (At 60°C), kgs.	**1256**	900
2	Marshall Flow at 60°C, mm.	**3.42**	2.0 - 4.0

*Result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Dwarakanagara, 2nd Main Road.

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NEW TECHNOLOGIES TO INNOVATE

:C/QC/YPD/2020-21/KL-DBM2

Date: 02-07-2021

.TEST REPORT ON BITUMINOUS MIXES :
(BITUMEN EXTRACTION TEST & GRADATION TEST)

Sub: To determine the percentage of bitumen and gradation for DBM mix sample.
{Project*: Improvements to Roads and Drains at Dwarakanagara Surrounding area in Ward No: 05 (Jakkur) Byatarayanapura Sub-Division.}
Ref.: Material testing/PMC/20-21,
Report Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: K.R Santosh Kumar, Bangalore.

TEST RESULTS

A. Type of Construction : **Dense Graded Bituminous Macadam.**

1. The bitumen content obtained after subjecting the sample for Bitumen Extraction test = **4.51 %**

2. **Gradation Test**

TABLE 1.1

Sieve Size, mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Gradation requirement as per Table 500-10 of MORTH Specfications-2013 DBM (Grading - 2)
37.5	**100**	100
26.5	**98.15**	90-100
19.0	**84.15**	71-95
13.20	**70.40**	56-80
4.75	**49.70**	38-54
2.36	**36.05**	28-42
0.300	**14.90**	7-21
0.075	**5.15**	2-8

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Dwarakanagara, 1st Main Road (SLV Apartment Rd)

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NEW TECHNOLOGIES TO INNOVATE

NC/QC/YPD/2020-21/KL-DBM3

Date: 02-07-2021

LTEST REPORT ON BITUMINOUS MIXES :
(BITUMEN EXTRACTION TEST & GRADATION TEST)

Sub: To determine the percentage of bitumen and gradation for DBM mix sample.

(Project*: Improvements to Roads and Drains at Dwarakanagara Surrounding area in Ward No: 05 (Jakkur) Byatarayanapura Sub-Division.)

Ref.: Material testing/PMC/20-21,

Report Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.

Name of the Agency/Contractor*: K.R Santosh Kumar, Bangalore.

TEST RESULTS

A. Type of Construction : **Dense Graded Bituminous Macadam.**

1. The bitumen content obtained after subjecting the sample for Bitumen Extraction test = **4.53 %**

2. **Gradation Test**

TABLE 1.1

Sieve Size, mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Gradation requirement as per Table 500-10 of MORTH Specfications-2013 DBM (Grading - 2)
37.5	100	100
26.5	97.05	90-100
19.0	85.30	71-95
13.20	72.75	56-80
4.75	42.40	38-54
2.36	36.95	28-42
0.300	15.10	7-21
0.075	6.45	2-8

The result of the materials tested meets the standards and hence can be used for the work.

Sample Collected Site : Dwarakanagara, 1st Cross Road .

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29.07.21

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NC/QC/YPD/2020-21/KL-DS3

Date: 02-07-2021

1.TEST REPORT ON BITUMINOUS MIXES :
(STABILITY OF BITUMINOUS MIX)

Sub: To determine the stability of bituminous mix for DBM mix sample.
{Project*: Improvements to Roads and Drains at Dwarakanagara Surrounding area in Ward No: 05 (Jakkur) Byatarayanapura Sub-Division.}

Ref.: Material testing/PMC/20-21,

Report Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.

Name of the Agency/Contractor*: K.R Santosh Kumar, Bangalore.

TEST RESULTS

Table 1: Properties of DBM (Gr-2) Mix

Sl. No.	Test Property	*Test results obtained by Marshall method	Requirements of Dense Bituminous Macadam, Grade-2 as per M.o.R.T&H (IV Revision)-2001 Specifications
1	Marshall Stability (75 blows) (At 60°C), kgs.	**1247**	900
2	Marshall Flow at 60°C, mm.	**3.36**	2.0 - 4.0

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Dwarakanagara, 1st Cross Road ..

29.7.21
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NEW TECHNOLOGIES TO INNOVATE

C/YPD/2020-21/KL-BB1 **Date: 03-07-2021**

EST REPORT ON BITUMEN SAMPLE:

Testing of Bitumen sample VG-30 Grade.
ect*: Improvements to Roads and Drains at Dwarakanagara Surrounding area in Ward No: 05 (Jakkur) Byatarayanapura Sub-Division.}
Material testing/PMC/20-21,
rt Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.
e of the Agency/Contractor*: K.R Santosh Kumar, Bangalore.
nical Reference: Ministry of Road Transport and Highways, V Revision, 2013 and IS 73: 1992.

ABLE 1.1 ;

	Details	Test Results	Requirements as per I.S 73 –1992 Specifications
	Penetration at 25^0 C	**50.30^0 C**	Min. 45
	Ductility Value at 25^0 C	**105.90 cm**	40
	Flash point	**234^0 C**	Minimum 220^0 C
	Softening point	**50.90^0 C**	Min. 47

he result of the materials tested meets the standards and hence can be used for the work.
ample Collected Site : Dwarakanagara, 2nd Main Road

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NEW TECHNOLOGIES TO INNOVATE

QC/YPD/2020-21/KL-CB1

Date: 03-07-2021

EST REPORT ON COARSE AGGREGATE:

Testing of Coarse Aggregate used in Bituminous Concrete.
ject*: Improvements to Roads and Drains at Dwarakanagara Surrounding area in Ward No: 05 (Jakkur) Byatarayanapura Sub-Division.}
: Material testing/PMC/20-21,
ort Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.
ne of the Agency/Contractor*: K.R Santosh Kumar, Bangalore.

ABLE 1.1 ;

Test conducted	Test Results	Tests Conforms to IS 2386(Part I to IV)– 1963 (Reaffirmed on 2002) & Requirements as per IS:383-1970 & M.o.R.T.H Specification, V Revision -2013.
Aggregate Impact Value	**22.51 %**	Not more than 24.00 %
Combined Flakiness and Elongation index, %	**28.16 %**	Not more than 35.0 %
Water absorption, %	**0.41 %**	Not more than 2.0 %
Specific gravity	**2.61**	-------
Soundness	**5.32 %**	Max. 12 % in Sodium Sulphate

he result of the materials tested meets the standards and hence can be used for the work.
ample Collected Site : Dwarakanagara, 2nd Main Road

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NEW TECHNOLOGIES TO INNOVATE

C/QC/YPD/2020-21/KL-BC1

Date: 05-07-2021

TEST REPORT ON BITUMINOUS MIXES :

(BITUMEN EXTRACTION TEST & GRADATION TEST)

Sub: To determine the percentage of bitumen and gradation for BC mix sample.

Project*: Improvements to Roads and Drains at Dwarakanagara Surrounding area in Ward No: 05 (Jakkur) Byatarayanapura Sub-Division.}

Ref.: Material testing/PMC/20-21,

Report Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.

Name of the Agency/Contractor*: K.R Santosh Kumar, Bangalore.

TEST RESULTS

A. Type of Construction : **Bituminous Concrete**

1. The bitumen content obtained after subjecting the sample for Bitumen Extraction test = **5.43 %**

2. **Gradation Test**

TABLE 1.1

Sieve Size, mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Gradation requirement as per Table 500-17 of MORTH Specfications-2013 BC (Grading - 2)
19.0	**100**	100
13.2	**98.25**	90-100
9.5	**84.10**	70-88
4.75	**63.50**	53-71
2.36	**53.25**	42-58
1.18	**45.35**	34-48
0.600	**32.75**	26-38
0.300	**25.60**	18-28
0.150	**17.25**	12-20
0.075	**8.15**	4-10

The result of the materials tested meets the standards and hence can be used for the work.

Sample Collected Site : Dwarakanagara, 2nd Main Road

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Asst. Executive Engineer
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NEW TECHNOLOGIES TO INNOVATE

C/QC/YPD/2020-21/KL-BS1

Date: 05-07-2021

TEST REPORT ON BITUMINOUS MIXES :
(STABILITY OF BITUMINOUS MIX)

ub: To determine the stability of bituminous mix for BC mix sample.
roject*: Improvements to Roads and Drains at Dwarakanagara Surrounding area in Ward No: 05 (Jakkur) Byatarayanapura Sub-Division.}
ef.: Material testing/PMC/20-21,
eport Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.
ame of the Agency/Contractor*: K.R Santosh Kumar, Bangalore.

TEST RESULTS

able 1: Properties of BC (Gr-2) Mix

Sl. No.	Test Property	*Test results obtained by Marshall method	Requirements of Bituminous Concrete, Grade-2 as per M.o.R.T&H (V Revision)-2013 Specifications
1	Marshall Stability (75 blows) (At 60°C), kgs.	**1355**	900
2	Marshall Flow at 60°C, mm.	**3.46**	2.0 - 4.0

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Dwarakanagara, 2nd Main Road

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29.7.21
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NEW TECHNOLOGY FOR BETTER

CQCYPD/2020-21/KL-BC2

Date: 16-07-2021

TEST REPORT ON BITUMINOUS MIXES :

(BITUMEN EXTRACTION TEST & GRADATION TEST)

ub: To determine the percentage of bitumen and gradation for BC mix sample

Project*: Improvements to Roads and Drains at Dwarakanagara Surrounding area in Ward No 05 (Jakkur) Byatarayanapura Sub-Division ;

ef.: Material testing/PMC/20-21,

eport Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.

lame of the Agency/Contractor*: K.R Santosh Kumar, Bangalore.

TEST RESULTS

A. Type of Construction : Bituminous Concrete

1. The bitumen content obtained after subjecting the sample for Bitumen Extraction test = 5.42%

2. Gradation Test

TABLE 1.1

Sieve Size, mm	Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation)	Gradation requirement as per Table 500-17 of MORTH Specifications-2013 BC (Grading - 2)
19.0	100	100
13.2	97.65	90-100
9.5	85.30	70-88
4.75	62.95	53-71
2.36	55.40	42-58
1.18	40.70	34-48
0.600	33.05	26-38
0.300	25.35	18-28
0.150	14.75	12-20
0.075	6.20	4-10

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Dwarakanagara, 1st Main Road (SLV Apartment Rd)

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Asst. Executive Engineer
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NEW TECHNOLOGIES TO INNOVATE

NC/QC/YPD/2020-21/KL-BS2

Date: 06-07-2021

1.TEST REPORT ON BITUMINOUS MIXES :
(STABILITY OF BITUMINOUS MIX)

Sub: To determine the stability of bituminous mix for BC mix sample.
{Project*: Improvements to Roads and Drains at Dwarakanagara Surrounding area in Ward No: 05 (Jakkur) Byatarayanapura Sub-Division.}
Ref.: Material testing/PMC/20-21,
Report Required for: Assistant Executive Engineer,
Yelahanka Project Division,
BBMP, Bangalore.
Name of the Agency/Contractor*: K.R Santosh Kumar, Bangalore.

TEST RESULTS

Table 1: Properties of BC (Gr-2) Mix

Sl. No.	Test Property	*Test results obtained by Marshall method	Requirements of Bituminous Concrete, Grade-2 as per M.o.R.T&H (V Revision)-2013 Specifications
1	Marshall Stability (75 blows) (At 60°C), kgs.	1379	900
2	Marshall Flow at 60°C, mm.	3.41	2.0 - 4.0

The result of the materials tested meets the standards and hence can be used for the work.
Sample Collected Site : Dwarakanagara, 1st Main Road (SLV Apartment Rd)

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